

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to an approach to roll round in detail the film which uses a contact pressure roll about an approach to roll round a film.

[0002]

[Description of the Prior Art] Conventionally, carrying out the contact pressure of the contact pressure roll to a rolling-up core front face, it rolls round and plastic film, such as biaxial-stretching polyester film (PET film), is shipped. A contact pressure roll prevents that company air invades into the PET film layer rolled round by the rolling-up core, and further, it is used in order to prevent that Siwa occurs on a PET film by deaerating the air which invaded. And generally, a contact pressure roll gives a rubber lining to the surface of the core material which used ingredients, such as aluminum and a carbon fiber, and is constituted.

[0003] The include angle seen from the contact pressure roll core of a part that a film contacts a contact pressure roll is called lap include angle to a contact pressure roll, and this lap include angle is usually around 180 degrees. By the way, by the manufacturer of a PET film, the rate rise of film production Rhine is aimed at for the purpose of improvement in productivity in recent years.

[0004]

[Problem(s) to be Solved by the Invention] However, it is very difficult to roll round a split PET film 10 micrometers or less at high speed, for example. An accompanying drawing explains a trouble below. Drawing 2 is a schematic diagram explaining an example of the film pass line of an approach to roll round the former, and drawing 3 is a schematic diagram explaining signs that Ayr was involved in the contact pressure roll section in the approach to roll round the former, and Siwa is generated on the product roll.

[0005] It is rolled round carrying out the contact pressure of the film (4) with a contact pressure roll (1), as shown in drawing 2, and is rolled round by the core (2). In the conventional case, the lap include angle (θ_2) to the contact pressure roll (1) of a film (4) is usually adjusted to about 180 degrees using the guide roll (3). The Ayr ***** (5) arises between a contact pressure roll (1) and a film (4) in the appearance which follows on raising a rolling-up rate and is shown in drawing 3, this Ayr ***** phenomenon rolls round, and it has become the cause of generating of the film on a core (2) of surface Siwa (6). Therefore, unless it lowers even to a low speed like 180 m/min and productivity is sacrificed, the quality defect of Siwa etc. is unavoidable. The purpose of this invention is to offer the approach of rolling round at a high speed without the defect of surface Siwa etc. occurring, even if thickness is a thin film 10 micrometers or less.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, as a result of observing the effect of the rolling-up core at the time of rolling up of the PET film to a contact pressure roll, and the lap include angle of a contact pressure roll in a detail and advancing examination variously, this invention person was easy and reached header this invention in the approach excellent in effectiveness. That is, the summary of this invention is faced rolling round a film to a rolling-up core, and consists in an approach to roll round the film characterized by making into 5-30 degrees the lap include angle of the film to the contact pressure roll by which a pressure welding is carried out to a rolling-up core.

[0007]

[Embodiment of the Invention] Hereafter, this invention is explained to a detail with reference to an accompanying drawing. Drawing 1 is a schematic diagram explaining an example of the film pass line of an approach to roll round this invention. For example, after a PET film extrudes raw material resin in the shape of a sheet from a melting extruder, carries out cooling solidification and usually carries out vertical extension in a non-fixed form sheet, nothing, and a roll drawing machine, in a tenter, it carries out horizontal extension, is manufactured, and is rolled round by the original fabric roll. Subsequently, it

is rolled round and shipped to a rolling-up core (2), carrying out a slit to suitable width of face from an original fabric roll.

[0008] It is rolled round carrying out the contact pressure of the film (4) with a contact pressure roll (1), as shown in drawing 1, and is rolled round by the core (2). In that case, the approach of this invention adjusts the location of a guide roll (3), and it sets up 5-30 degrees (theta 1) of lap include angles to the contact pressure roll (1) of a film (4) so that it may become 10-20 degrees preferably. a lap -- an include angle (theta 1) -- 30 -- degree -- exceeding -- a case -- Ayr -- entrainment -- (-- five --) -- exclusion -- effectiveness -- falling -- a sake -- rolling up -- a rate -- enough -- high -- carrying out -- a case -- **** -- rolling round -- a core -- (-- two --) -- a top -- it can set -- a surface -- Siwa -- (-- six --) -- generating -- it cannot prevent. Moreover, when a lap include angle (theta 1) is less than 5 degrees, the edge of the product roll rolled round by the core (2) becomes irregular.

[0009] Although especially the thickness of the target film is not restricted, in the case of a thin film with a thickness of 10 micrometers or less, its effectiveness is usually remarkable in an approach to roll round the film of this invention. Moreover, the quality of the material of a film may be except PET. Moreover, per film width of 1m, although not restricted, although the range especially of the contact pressure force of a contact pressure roll (1) is usually 10-100kg, about 35-80kg is desirable [the force].

[0010]

[Example] Next, although an example explains this invention to a detail further, this invention is not limited to the following examples, unless the summary is exceeded.

[0011] It rolled round to the rolling-up core (2), cutting the PET film (4.5 micrometers in thickness) rolled round on the example 1 original-fabric roll to 1m piece in a slitting machine. At that time, the roll of the diameter of 13cm and 120cm of direct length which covered rubber with a degree of hardness of 65 degrees was used for rodding of aluminum material as a contact pressure roll (1), and the contact pressure force was set to 50kg. Moreover, the rolling-up condition was observed, changing [have arranged the guide roll (3) so that it may become 20 degrees about the lap include angle (theta 1) to the contact pressure roll (1) of a film, and] a rolling-up rate into a high speed gradually from a low speed. The result was shown in Table 1 by setting to "NG" the case where "O.K." and surface Siwa generate the case where surface Siwa does not occur.

[0012] Except having made the example 1 of a comparison - 2 lap include angle (theta 2) into the conditions (180 degrees) and lap include angle of 90 degrees of the conventional approach, the rolling-up trial of a film was performed like the example 1, and the existence of generating of surface Siwa was observed, respectively. The result is shown in Table 1.

[0013]

[Table 1]

巻上速度 (m/m 1 n)	実施例 1 ラップ角度20°	比較例 1 ラップ角度90°	比較例 2 ラップ角度180 °
1 8 0	OK	OK	OK
2 0 0	OK	OK	NG
2 2 0	OK	OK	NG
2 4 0	OK	NG	NG
2 7 0	OK	NG	NG
3 0 0	OK	NG	NG

[0014] Although surface Siwa occurred in 240 m/min like the above result when surface Siwa occurred in 200 m/min in the case of 180 degrees and the lap include angle (theta 1 or theta 2) to the contact pressure roll of a film was 90 degrees or, in the case of 20 degrees within the limits specified by this

invention, surface Siwa did not occur in 300 m/min, either.

[0015]

[Effect of the Invention] As explained above, in case a thin yarn count film with a thickness of 10 micrometers or less is rolled round using a contact pressure roll according to this invention approach, by controlling the lap include angle to the contact pressure roll of a film at 5-30 degrees, it can roll round at the high speed of 300 or more m/min especially, therefore industrial worth of this invention is large.

[0016]

[Translation done.]